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ABSTRACT

A study attempted to provide answers to three questions: (1) How often are articles from six frequently used health education journals referenced by authors writing for the same journals? (2) What is the citation frequency of articles from four other selected health journals within these six journals? and (3) What factors govern the likelihood of articles being referenced by authors? Articles from the "Journal of School Health," "American Journal of Public Health," "Journal of the American College Health Association," and "Health Education Quarterly" were referenced most frequently, followed by articles published in "Health Education," "International Journal of Health," and others. Journals whose content is most generic to health educators were identified. Caveats specific to bibliometric analysis were offered. (Author/JD)

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CITATION MATRICES OF SELECTED HEALTH JOURNALS

by

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CITATION MATRICES OF SELECTED HEALTH JOURNALS

ABSTRACT

This study attempted to provide answers to three questions: How often are articles from six frequently used health education journals referenced by authors writing for the same journals? What is the citation frequency of articles from four other selected health journals within these six journals? What factors govern the likelihood of articles being referenced by authors? Articles from the Journal of School Health, American Journal of Public Health, Journal of the American College Health Association and Health Education Quarterly were referenced most frequently followed by articles published in Health Education, International Journal of Health Education and others. Journals whose content is most generic to health educators were identified. Caveats specific to bibliometric analysis were offered.

INTRODUCTION

This brief exploratory study represents an attempt to determine citation frequencies of articles of a small group of health education and public health journals. Three questions provide the focus for this study: How often are articles from six frequently used health education journals, Health Education, Health Education Quarterly, Health Values: Achieving High Level Wellness, International Journal of Health Education, Journal of the American College Health Association and The Journal of School Health, cited by authors within each of these same journals? What is the citation frequency of articles from four other selected health journals within these six journals? And, what significant factors govern the likelihood of articles from one journal being cited in another journal or a group of journals?

This bibliometric process represents an initial effort in determining citation patterns and establishing an overall citation matrix for a small group of health journals. From this analysis, a clearer picture of journal use via citation count may emerge and be helpful to those who use these particular journals. Comments relative to quality or prestige of these journals are offered with extreme caution. Furthermore, journal rankings are done to demonstrate citation frequencies and not as a definitive measure of a journal's prestige or usefulness. The myriad issues involved here are discussed in a later section of this paper.

In recent years, academics have placed a greater reliance upon publishing as a visible means of productivity and accountability in higher education. This fact, among others, has fueled efforts to establish

hierarchical classifications of journals in light of certain criteria. Several criterion measures have been used by researchers and other professionals to determine the "prestige," "impact," "usefulness," "influence," "visibility," or "quality" of professional journals within a particular academic discipline. Among those frequently employed include: Is the journal refereed or not? If refereed, are referees drawn from a body of recognized scholars? Does the publisher assess page fees? Is a journal perceived as one of quality/prestige? Who publishes in a particular journal? Is it national/international in scope? And, what is the accept nce/rejection rate of a journal (Bayer, 1983)? These are rather simple criteria used by researchers and practitioners alike in establishing a real or perceived hierarchy among journals. Added to these measures have been attempts to rank journals by researchers in light of certain preconceived criteria. Still others believe that total circulation of journals is a reliable criterion in determining a particular journal's usefulness (Winkler, 1982).

With the publication of three major indexes by the Institute for Scientific Information, Science Citation Index (SCI), Social Science Citation Index (SSCI) and the Arts/Humanities Citation Index (A/HCI), considerable attention is now focused on citation frequency in determining interaction matrices of journals. The SSCI catalogues articles in more than 1500 top U.S. and international journals in education, social and behavioral sciences. From the manual use of the SSCI or from an available computer file system a number of items can be determined including the number of times articles have been cited, the citation record of authors, and the frequency that journals are referenced (cited). Several investigators, representing diverse disciplines, have utilized the SSCI system in determining citation rates, structured characteristics and

"pecking order" of journals (Bayer, 1983; Lawani and Bayer, 1983; Roche and Smith, 1978; Smart and Elton, 1981; Smith and Cauley, 1981; White and White, 1977). While the SSCI is a very useful tool in spite of its faults and difficulties, it was not especially helpful in determining specific citations of selected health journals and was used minimally with this study (Lawani and Bayer, 1983; Roche and Smith, 1978). The major reason was due to the fact that some of the journals examined in this study are not included in the citation system.

METHOD

Six periodicals, Health Education, Health Education Quarterly (formerly Health Education Monographs), Health Values, International Journal of Health Education, Journal of the American College Health Association and The Journal of School Health, were chosen for primary analysis because of their availability and for their potential use by school health educators. References following each article in each of the six journals for the most recent 24 issues were hand counted to determine the citation frequency of each journal within the same journal ("same journal" citation) and the other five journals. (Note, for this study the words "cited," "referenced," "citing," and "referencing" are used interchangeably).

In addition, citations of articles from four community and public health journals were tabulated as they appeared within these six journals. These included the American Journal of Public Health, Canadian Journal of Public Health, Journal of Community Health, and Public Health Reports. Table 1 lists all ten journals in rank order by circulation (Ulrich, 1982). They have been selected from a larger group identified by Sechrist and

Governali (1981) as publications having greatest potential for application to the health education arena.

The journals, Health Education, Health Values and the Journal of the American College Health Association are published bi-monthly (six issues per year) whereas Health Education Quarterly and the International Journal of Health Education are both published four times annually and the Journal of School Health 10 times annually. To compensate for this difference in publication frequency and to guarantee some degree of equalization in terms of potential references, 24 of the latest issues (through December 1982) of each journal were used in the review. (Note that annual supplements were used as part of the 24 issues in determining citation frequency of the Health Education Quarterly and 24 issues of the International Journal of Health Education were taken consecutively through 1981 rather than 1982 due to unavailability of the 1982 volume). Twenty-four issues represent the latest four volumes for the first three journals, six volumes of Health Education Quarterly and International Journal of Health Education, and approximately two and a half volumes of the Journal of School Health. Limitation of the analysis to 24 issues was an arbitrary decision based on the assumption that an accurate representation of each journal would be assured.

RESULTS

Table 2 lists the 10 health education, public and community health journals in order by the total number of times articles from each were cited in 24 issues of six health education journals. These figures include "same journal" citations for six of these 10 journals as indicated. Based on the citation frequency count for 24 issues, articles from the Journal of School Health were cited 249 times by authors writing within the same

journal and 225 times by authors within the other five journals for a total of 474 citations. This represents the highest citation rate for all journals. It should be noted, however, that totals for the four community and public health journals do not include "same journal" citations. Following the Journal of School Health in order of total citations are: American Journal of Public Health (386), Journal of the American College Health Association (331), Health Education Quarterly (304) and Health Education (180). Heading the second five journals is the International Journal of Health Education with 165 citations.

Health Values, the Journal of Community Health and the Canadian Journal of Public Health have been cited infrequently by authors of the other health education journals. This is not to suggest that these journals are not useful to professionals or are not quoted widely in other journals.

The American Journal of Public Health follows the Journal of School Health in citation frequency in spite of the fact that the 386 times it was cited does not include citations within the same journal. This journal is frequently cited by all health education journals included here and is apparently highly useful at least among publishing professionals. The Journal of the American College Health Association ranks third, but almost all references to the journal are found within the same journal. The JACHA was referenced only 31 times in 24 issues of the other five journals. This fact may point to the notion that it may be alien to a group of journals frequently identified as having great impact on health education (Price, 1980). Adding further support to this observation is the fact that the JACHA cites other health education journals on an infrequent basis.

Table 3 provides a finer calibration of citation rates of articles from six health education journals as they are referenced within each of

the same journals. Excluding "same journal" citations, the rank order of the six journals, including citation frequencies, would appear as follows: Journal of School Health (225), Health Education Quarterly (163), Health Education (108), International Journal of Health Education (75), Journal of the American College Health Association (31) and Health Values (28).

DISCUSSION

Articles, books and authors can be ranked in a hierarchical fashion through the process of determining the number of times they have been cited in other works (Roche and Smith, 1978; Price, Newell and Miller, 1982; Bayer, 1982). This system of ranking is based on the notion that "citation represents one of the strongest indices of the influence of a piece of work on subsequent works" (Bayer, 1982). By the same logic, journals in which articles appear can be ranked and a definite hierarchy will appear because often cited articles/authors means often referenced journals.

There are several variables that may determine whether or not a journal is widely referenced. Publication frequency is probably one of these. In this particular study, this phenomenon was partially controlled in that 24 issues of each of the six journals were counted as opposed to using a specified number of volumes. However, this places a reduced time frame on some journals. For example, 24 issues of the Journal of School Health extends over a period of only two and a half years while 24 issues of the Health Education Quarterly covers a six-year period. Length and number of articles also vary with journals. For example, one issue of Health Education Monographs is usually larger than a single issue of Health Values or Health Education and generally contains several more references.

The perceived reputation, prestige or image of a publication may be an influencing component in having its works cited. Reputable journals are

usually those that are national/international in scope, referenced by distinguished professionals, widely circulated, highly cited and attract influential authors. They may also contain a research and/or scholarly orientation. Authors are inclined to publish in journals thought to be "influential" within a particular field. It is also advantageous for reputable journals to attract reputable authors in developing a symbiotic relationship. If influential authors publish in highly reputable, influential journals it may then be deduced that both author and journal will be highly cited in subsequent works, a practice that may also contain a high degree of self-citing (Price, Newell and Miller, 1982).

Just as many authors strive to publish in highly reputable journals they may also desire to cite articles from journals with high reputations as a means of adding publishing clout to a manuscript. Inasmuch as an author is limited in ability to review the current literature, he or she may attempt to select works published in journals possessing a high reputation within the health education field (Roche and Smith, 1978).

Availability of a journal may determine to some extent the frequency articles are cited. While highly reputable scholars may know their field and stay abreast of development through the literature, it is a false assumption to believe that most authors canvass all available library indexes and computerized retrieval systems in search of supporting documentation. This means that an author is more likely to cite an article from a journal available through a subscription than one stored some place in the library. The International Journal of Health Education, and Health Values are examples of journals with small circulations compared to the Journal of School Health or Health Education.

Journals having a large circulation should be more accessible to more authors and may therefore be cited more frequently in other journals. Interestingly, rankings of journals based on circulation (Table 1) appear to correlate rather highly with journals ranked on the basis of citation frequency (Table 3). The length of time a journal has been published certainly is a factor in its availability and perhaps prestige. Among the journals identified in the tables, Health Values is a relatively new journal.

The content of a journal, whether it follows a "how-to" or research orientation, focuses on public health or school health matters, or publishes materials of a more global nature (eg, International Journal of Health Education and Health Education Quarterly) may determine in part the likelihood of its articles being cited widely among diverse journals. It appears, for example, that the Journal of the American College Health Association publishes material that is not highly referenced by authors writing for the other five journals. The JACHA was referenced only 31 times within 24 issues of the other five journals listed in Table 2.

The availability of a journal, its content orientation and perceived prestige may contribute to the likelihood of its articles being cited frequently within issues of the same journal ("same journal" citations). According to Bayer, (1982) it is usually the case that the same journal most frequently references its own published works as opposed to works of other journals. "Same journal" citations among the six journals vary. From the total number of times articles from each of the six journals were cited (Table 3), "same journal" citations, by percentage of total, were: Journal of the American College Health Association (90), International Journal of Health Education (54), Journal of School Health (53), Health Education Quarterly (46), Health Values (44) and Health Education (40).

This dimension may speak to a journal's potential usefulness within a broad field of study assuming it is cited frequently by its own authors but infrequently by others.

Finally, a caveat for those who may place too much confidence on citation frequency as an instrument for determining dimensions of a particular journal. Authors tend to cite themselves frequently as documented in the investigations by Price and colleagues (1982). Authors may also cite articles written by friends or colleagues or those perceived to possess visibility and publishing clout. In so doing journals are referenced. Furthermore, authors may tend to reference "favorite" or "available" journals. For example, an author writing in journal "A" may reference journal "B" 10 to 15 times. That practice may be due to the fact that journal "B" represents the definitive source or it may be that the journal was the only one available to the author at the time. Two or three such examples of authors highly referencing one particular journal will soon add up to large numbers. Despite this and other caveats, the frequency that a journal is referenced within other journals appears to be a meaningful way of determining its reputation and usefulness. As Roche and Smith (1978) conclude, there is considerable overlap between journal reputation and use even though a causal relationship cannot be disentangled.

CONCLUSIONS

This study was an attempt to determine citation matrices of selected health journals. Based on the number of times articles from one journal are referenced within the same journal or in other selected journals, the following conclusions appear to be justified.

The Journal of School Health, Health Education Quarterly, Health Education and the International Journal of Health Education are the most germane to the general area of health education assuming that those who publish in these journals are representative of health educators in general. Articles from the Journal of the American College Health Association are cited widely by authors publishing in the same journal but infrequently by those writing for the other five journals included in this study. It appears that JACHA's content is sufficiently different from that published by the other journals. Health Values, perhaps due to its relative infancy and/or content orientation, was not widely referenced in these journals.

Articles from the American Journal of Public Health are highly referenced by authors writing for health education journals. This would seem to indicate that this journal is extremely useful to a large number of health education professionals. Public Health Reports publishes articles that are also cited frequently within health education journals but to a lesser extent than the AJPH. Articles from the Journal of Community Health and the Canadian Journal of Public Health appear to be cited very infrequently by health education authors.

While the frequency by which articles within a journal are cited may be indicative of its use and while some differences have been established in this study relative to citation records, it is not prudent to suggest that there are major differences among these journals in terms of "influence," "prestige," "impact" or "quality." Other measures may be necessary before such extrapolations and generalizations can be made with any large degree of confidence. This study could very well serve as a stimulus for further attempts toward stratifying journals based on carefully pre-established criteria.

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TABLE 1
1982 Circulation of Health Journals

Journals	Circulation
Am J Pub Health (AJPH)	34,000
J Sch Health (JOSH)	12,000
Health Educ (HE)	10,000
Pub Health Rep (PHR)	8,000
Int J Health Educ (IJHE)	6,000
Health Values (HV)	5,000
Can J Pub Health (CJPH)	5,000
Health Educ Q (HEQ)	2,500
J Comm Health (JCH)	2,000
J Am Coll Health Assn (JACHA)	1,702

Source: Ulrich's International Periodicals Directory, 1982.

TABLE 2

Journals Listed by Number of Times Articles are Cited

in Selected Health Education Journals

Based on 24 Issues

Referenced Journals	Citing Journals						Totals
	JOSH	JACHA	HEQ	HE	IJHE	HV	
J Sch Health	249*	18	47	72	39	49	474
Am J Pub Health	52	31	143	54	55	51	386
J Am Coll Health Assn	10	300*	2	14	1	4	331
Health Educ Q	16	10	141*	48	57	32	304
Health Educ	54	5	23	72*	9	17	180
Int J Health Educ	7	2	41	17	90*	8	165
Pub Health Rep	10	6	55	16	20	24	131
Health Values	8	1	6	13	0	22*	50
J Comm Health	3	2	8	5	2	2	22
Can J Pub Health	3	1	5	2	0	4	15

* Denotes "same journal" citations.

TABLE 3

Journals Listed by Number of Times Articles are Cited
Within Each of the Same Journals
Based on 24 Issues

Referenced Journals	Citing Journals						Totals
	JOSH	JACHA	HEQ	HE	IJHE	HV	
J Sch Health	249*	18	47	72	39	49	474
J Am Coll Health Assn	10	300*	2	14	1	4	331
Health Educ Q	16	10	141*	48	57	32	304
Health Educ	54	5	23	72*	9	17	180
Int J Health Educ	7	2	41	17	90*	8	165
Health Values	8	1	6	13	0	22*	50

* Denotes "same journal" citations.